CLAIMS

We claim:

- 1. A method for fault resolution in a computer system, comprising:
 - (a) configuring a cluster with a gateway for a network interface;
- (b) issuing an operating system ICMP echo to peer nodes in said cluster and to said gateway through said network interface in response to a heartbeat loss detection; and
 - (c) analyzing a response from said echo to determine location of a fault in said cluster.
 - The method of claim 1, wherein the step of analyzing a response from said echo includes receiving said response and determining an intended recipient of said echo.
- The method of claim 2, wherein receipt of a return of said echo from said peer nodes for said network interface within a predefined time interval is indicative of operation of said network interface.
 - 4. The method of claim 2, wherein receipt of a return of said echo from said gateway for said network interface within a predefined time interval is indicative of operation of said network interface.
 - 5. The method of claim 2, wherein absence of return of said echo from said peer nodes for said network interface within a predefined time interval is indicative of a fault selected from a group consisting of: a peer node fault, a network fault local to the peer node, and combinations thereof.

- 6. The method of claim 1, further comprising the step of issuing an application level ping to a peer node in response to both receipt of said echo response within a predefined time interval and said heartbeat beat loss detection.
- 7. The method of claim 1, further comprising comparing an echo response from a target node set for each network interface.
 - 8. The method of claim 7, wherein the step of comparing an echo response from a target node set for each network interface includes criteria selected from the group consisting of: maximum availability of nodes in said network, availability of said gateway in said network, and combinations thereof.
- 9. A multiprocessor computer system, comprising:

 a cluster with a gateway configured for a network interface;
 an operating system ICMP echo adapted to be issued to peer nodes in a cluster and to said gateway through said network interface in response to a heartbeat loss detection; and
 a response from said echo adapted to be analyzed for location of a fault in said cluster.
- 15 10. The system of claim 9, wherein analysis of said response from said echo includes determination of an intended recipient of said echo.
 - 11. The system of claim 10, wherein receipt of a return of said echo from said peer nodes for said network interface within a predefined time interval is indicative of operation of said network interface.
- 20 12. The system of claim 10, wherein receipt of a return of said echo from said gateway for said network interface within a predefined time interval is indicative of operation of said network interface.

- 13. The system of claim 11, wherein absence of receipt of a return of said echo from peer nodes for said network interface within a predefined time interval is indicative of a fault selected from a group consisting of: a peer node fault, a network fault local to the peer node, and combinations thereof.
- The system of claim 9, further comprising an application level ping adapted to be issued to a peer node in response to both receipt of said echo within a predefined time interval and a heartbeat beat loss detection.
 - 15. The system of claim 9, further comprising a comparison tool adapted to compare an echo response from a target node for each network interface.
- 16. The system of claim 15, wherein said comparison tool determines a network interface path based upon criteria selected from the group consisting of: maximum availability of nodes in said network, availability of said gateway in said network, and combinations thereof.
 - 17. An article comprising:a computer-readable signal-bearing medium;
 - means in the medium for issuing an operating system ICMP echo to a peer node in a cluster and to a configured cluster gateway through said network interface in response to heartbeat loss detection;

means in the medium for analyzing a response message from said echo to determine location of a fault in said cluster.

20 18. The article of claim 17, wherein the medium is selected from a group consisting of: a recordable data storage medium, and a modulated carrier signal.

- 19. The article of claim 17, wherein said means for analyzing a response message from said echo includes receiving said response and determining an intended recipient of said echo.
- 20. The article of claim 17, further comprising means in the medium for issuing an application level ping to a peer node in response to both receipt of an echo response within a predetermined time interval and a heartbeat loss detection.
- 21. The article of claim 17, further comprising means in the medium for comparing an echo response from a target node set for each network interface.
- The article of claim 21, wherein the step of comparing an echo response from a target node set for each network interfaces includes criteria selected from the group consisting of: maximum
 availability of nodes in said network, availability of said gateway in said network, and combinations thereof.